

FIGURE 1A

Porous sol-gel silica
coated bent fiber probe

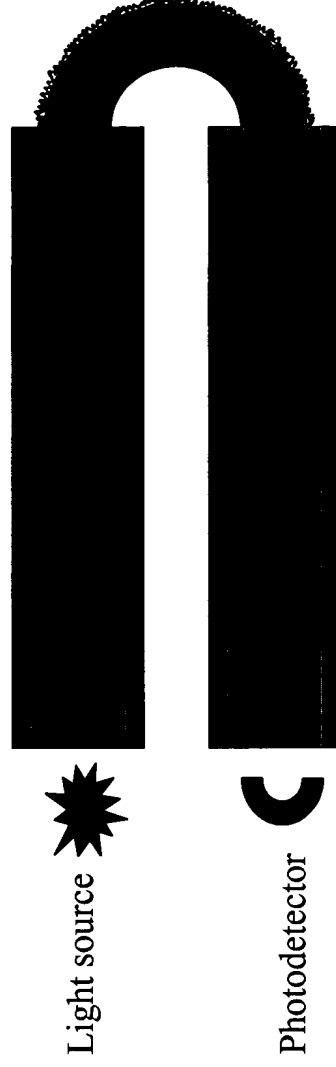


FIGURE 1B

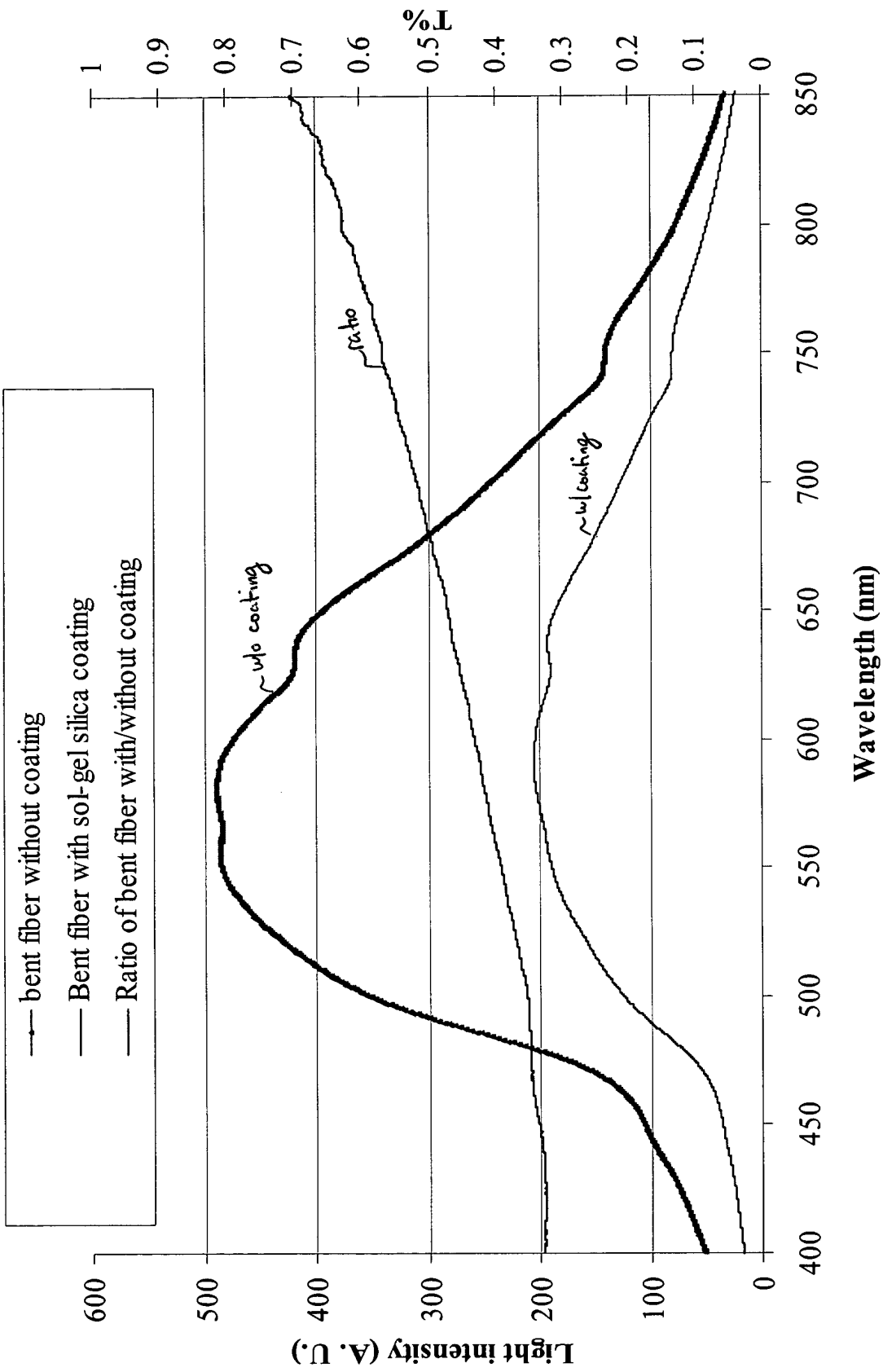


Fig. 2 Light intensity guided through a bent optical fiber with and without sol-gel silica coating

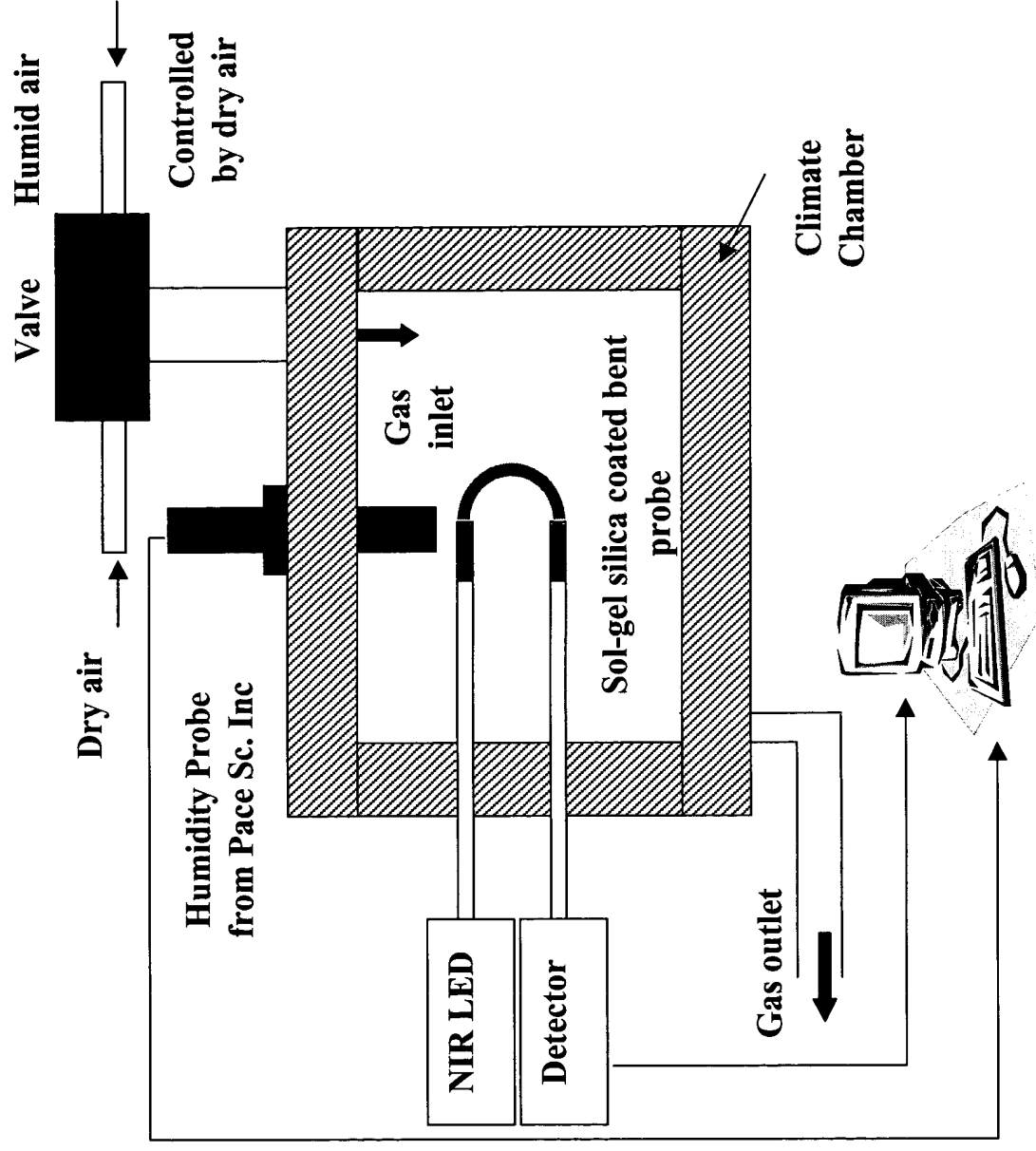


Fig. 3 Experimental set-up for testing the optical fiber moisture sensor

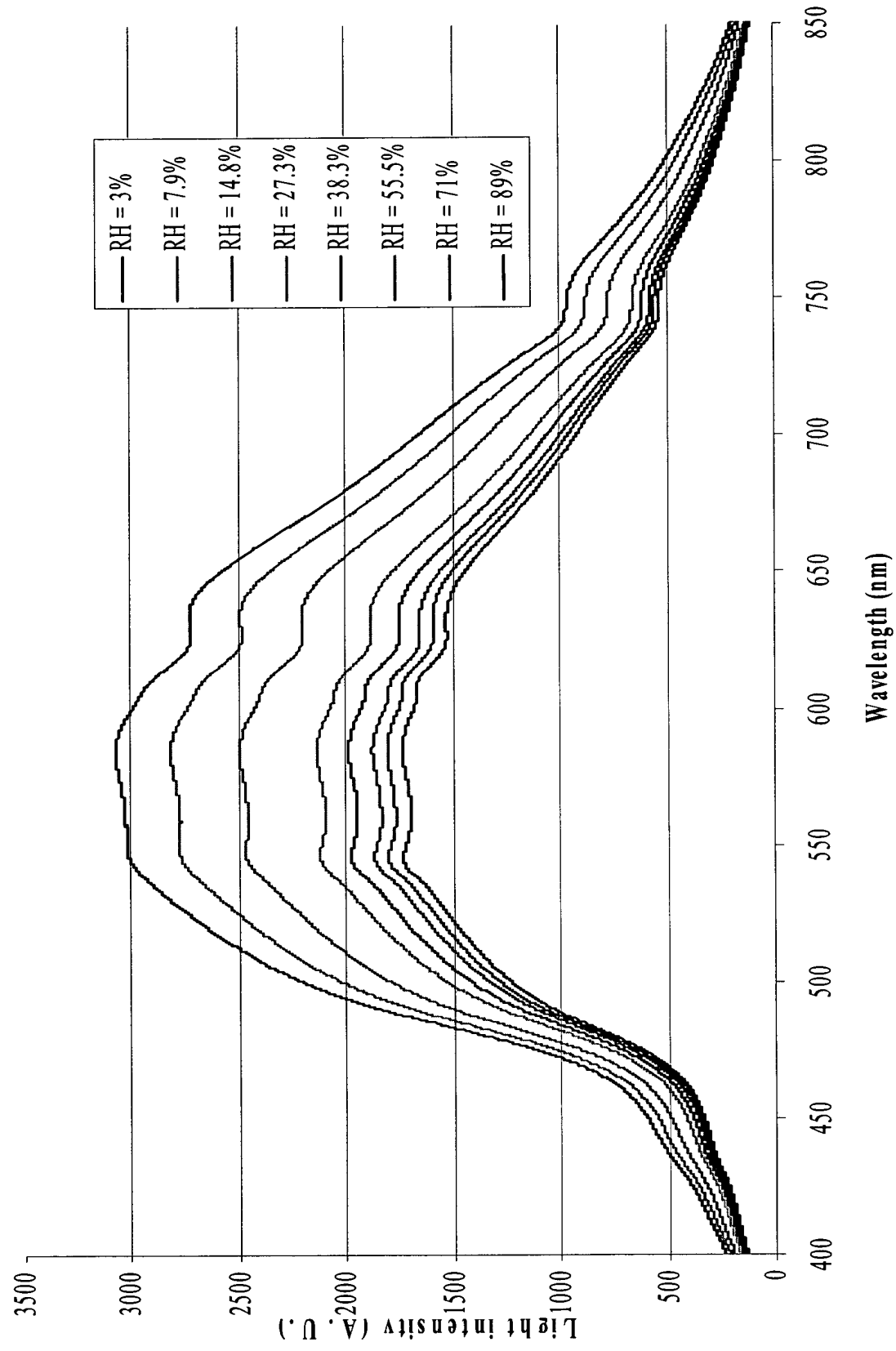


Fig. 4 Light intensity guided through a sol-gel silica coated bent fiber probe in air gas of different humidity

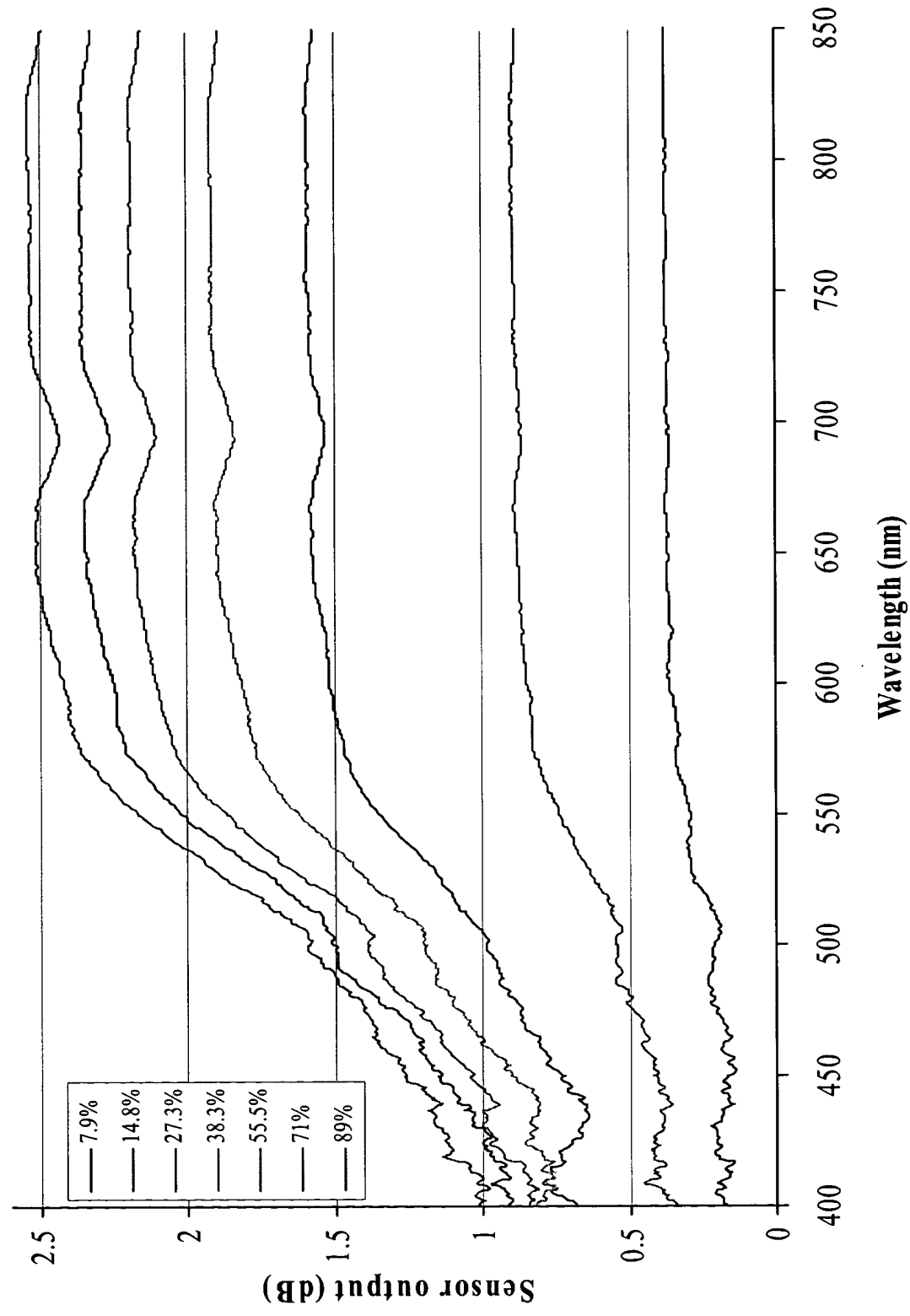


Fig. 5 dB response of a sol-gel silica coated bent fiber probe to air gas of different humidity against wavelength

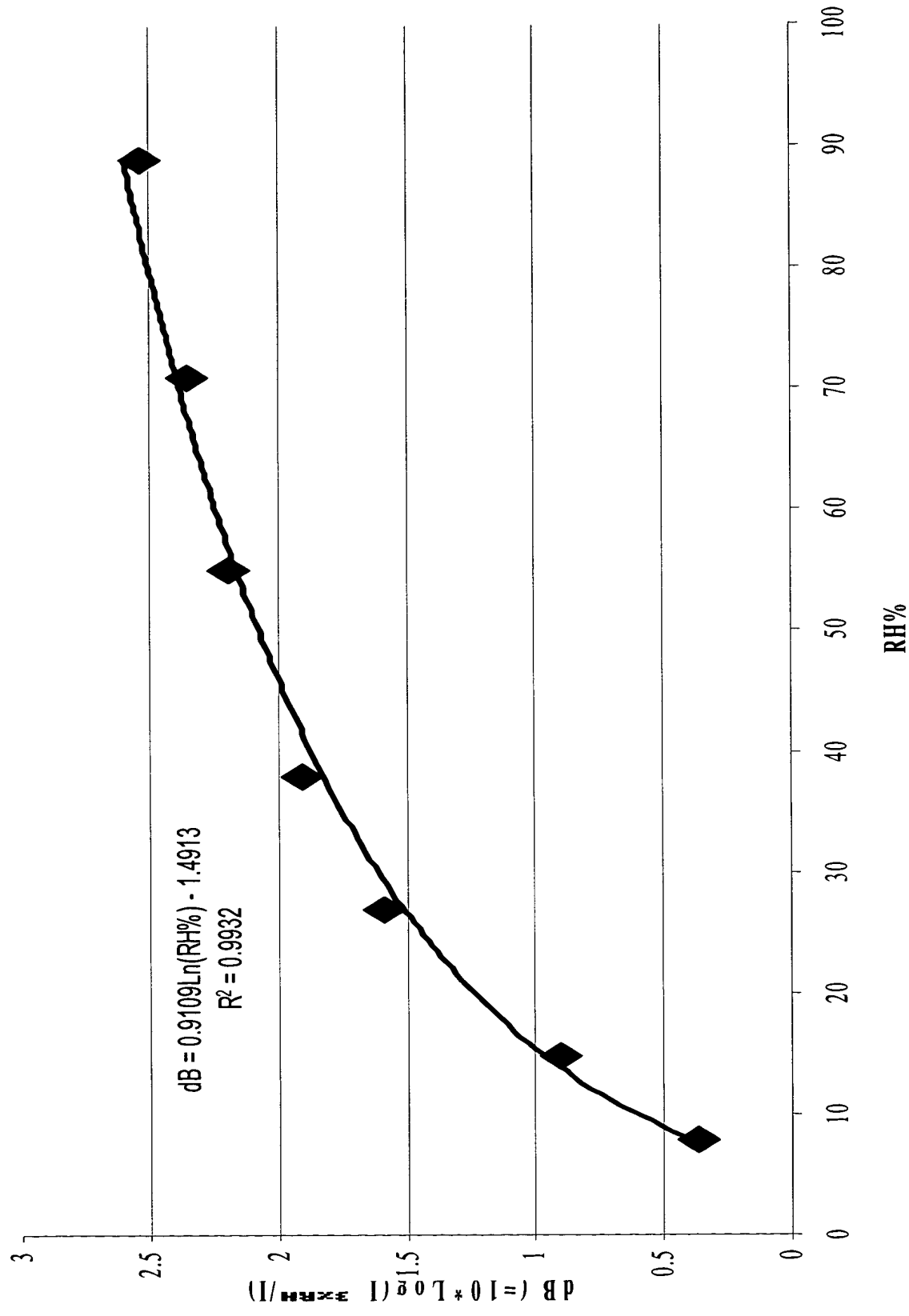


Fig. 6 Calibration curve of a sol-gel silica coated bent fiber probe for moisture sensing



Fig. 7 Time response of a sol-gel silica coated bent fiber probe to moisture change

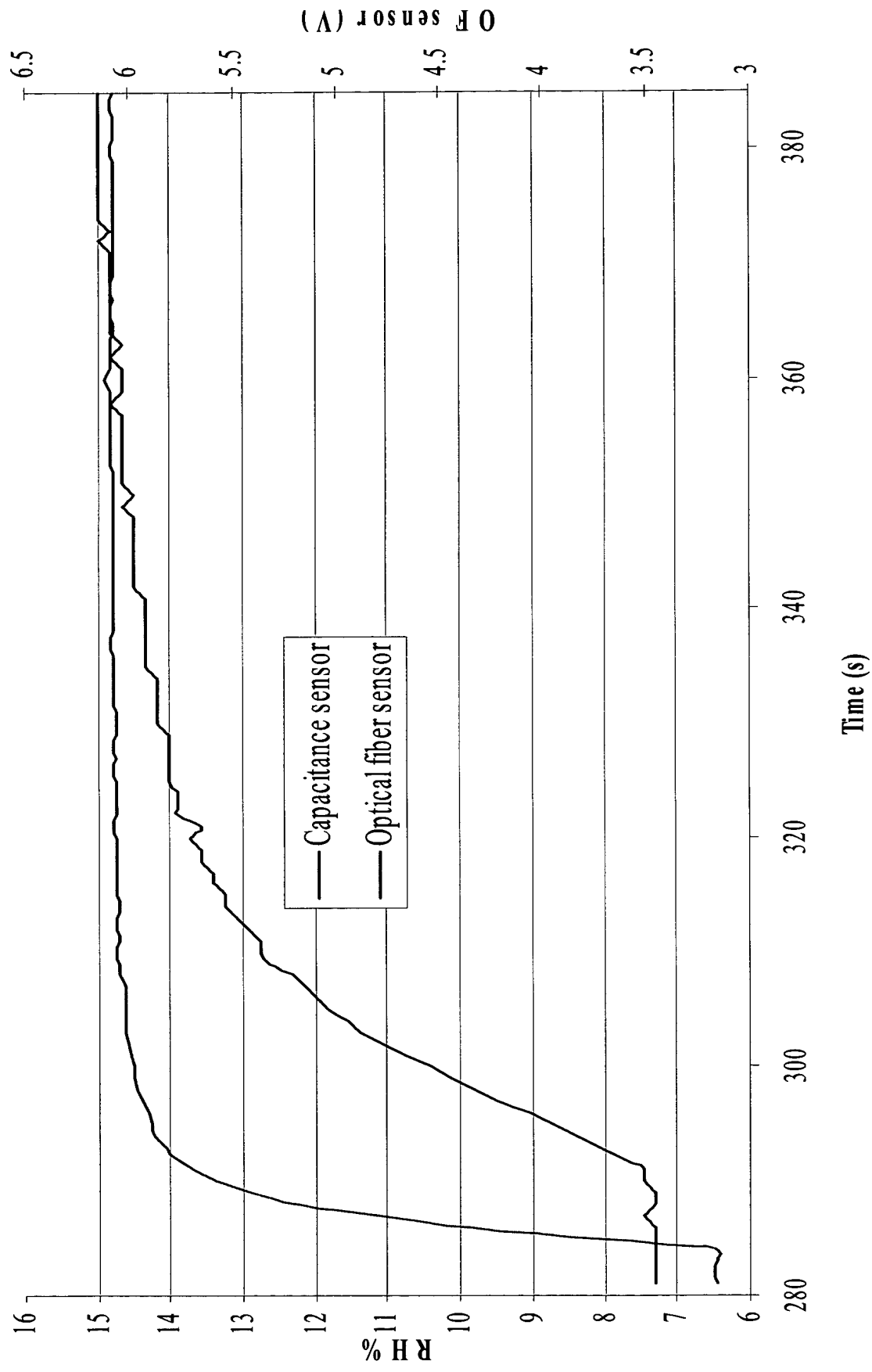


Fig. 8 Comparison of response time of a sol-gel silica coated bent fiber moisture sensor with a capacitance based commercial sensor

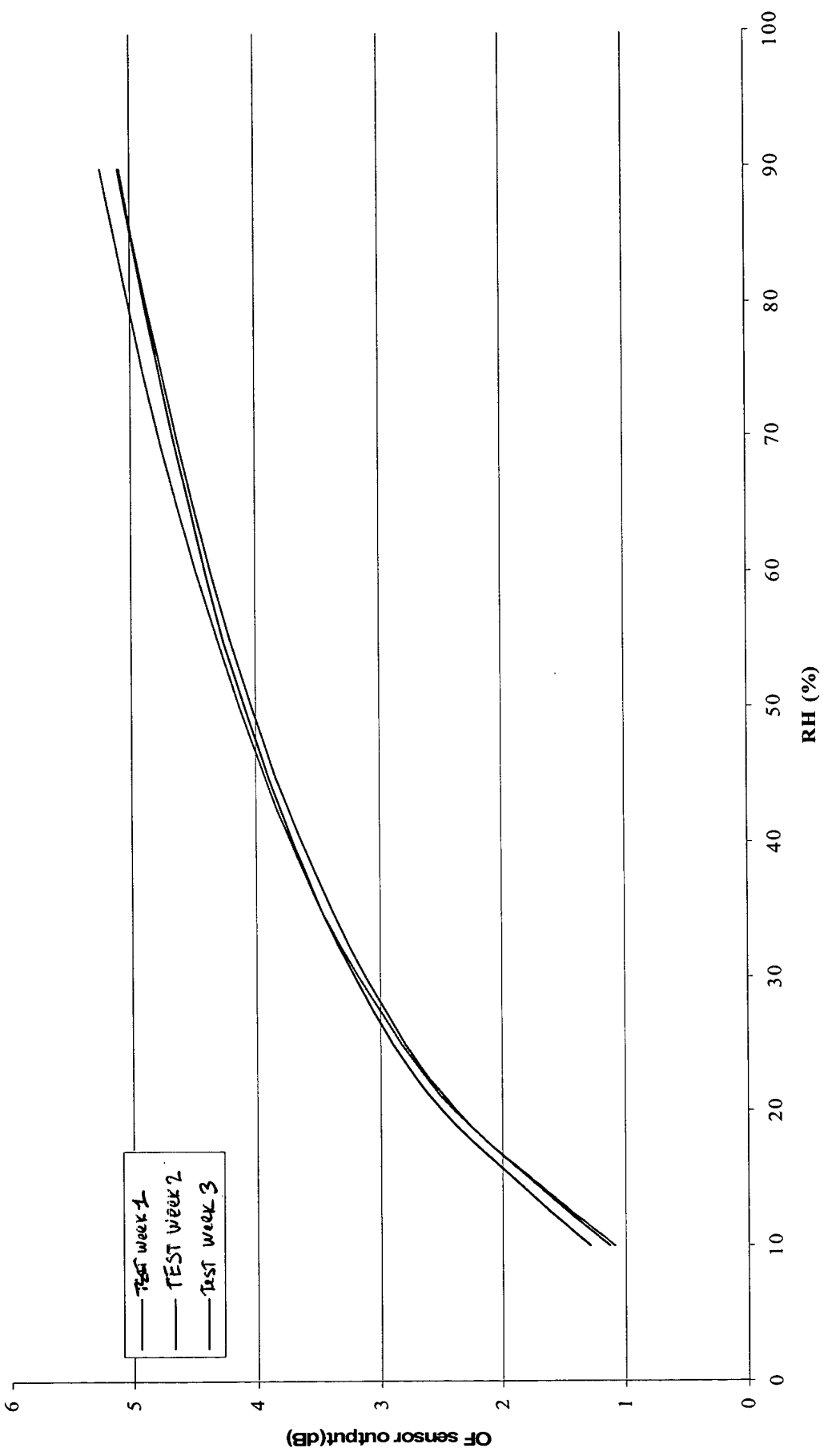


Fig. 9 - Calibration curves of a sol-gel silica coated bent fiber sensor on different dates
(The probe was soaked in water in between each test)

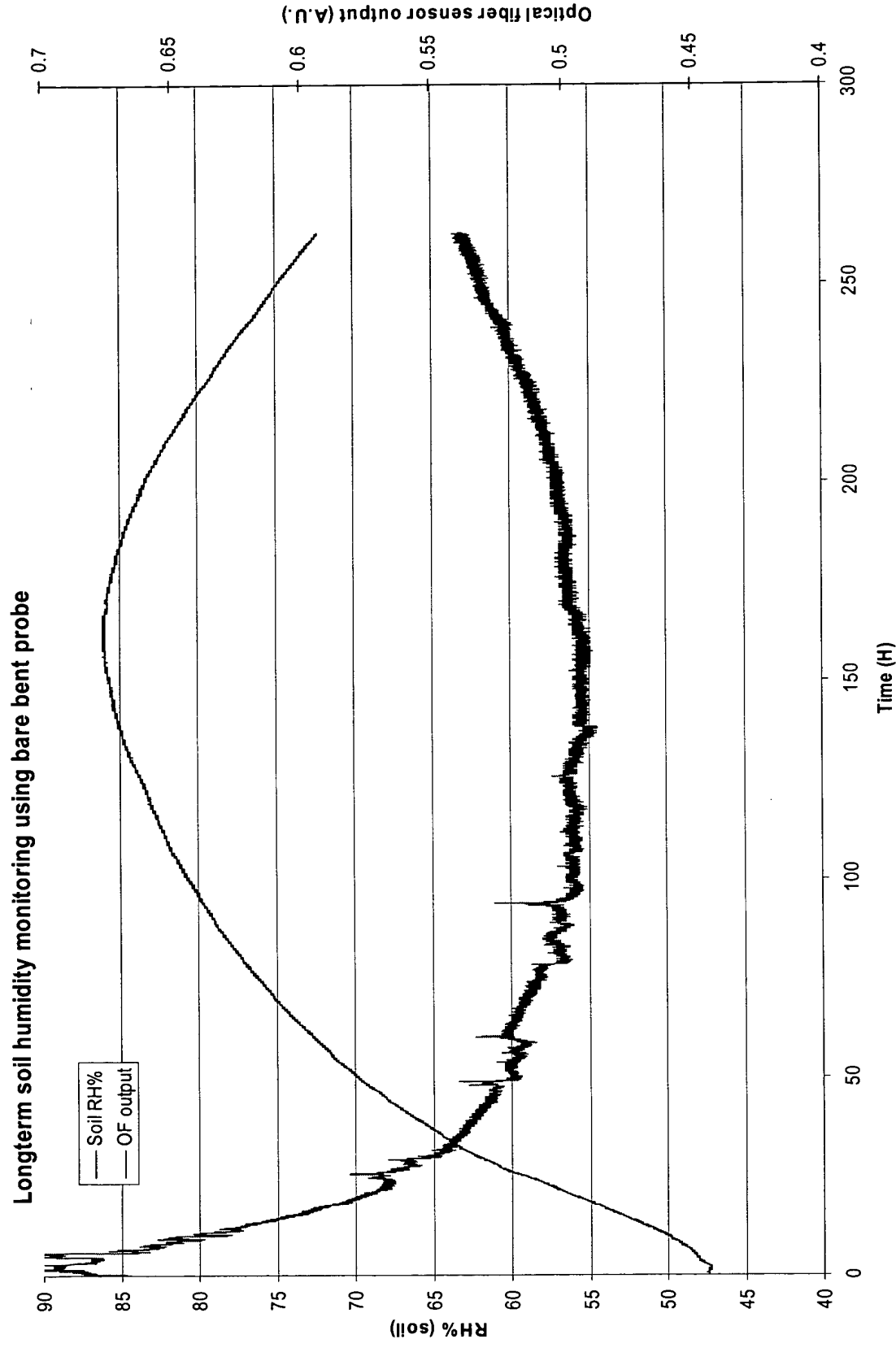


Fig. 10 Long-term soil moisture monitoring using a sol-gel silica coated bent fiber sensor
(The coated bent fiber probe was buried in soil sample without any package protection)

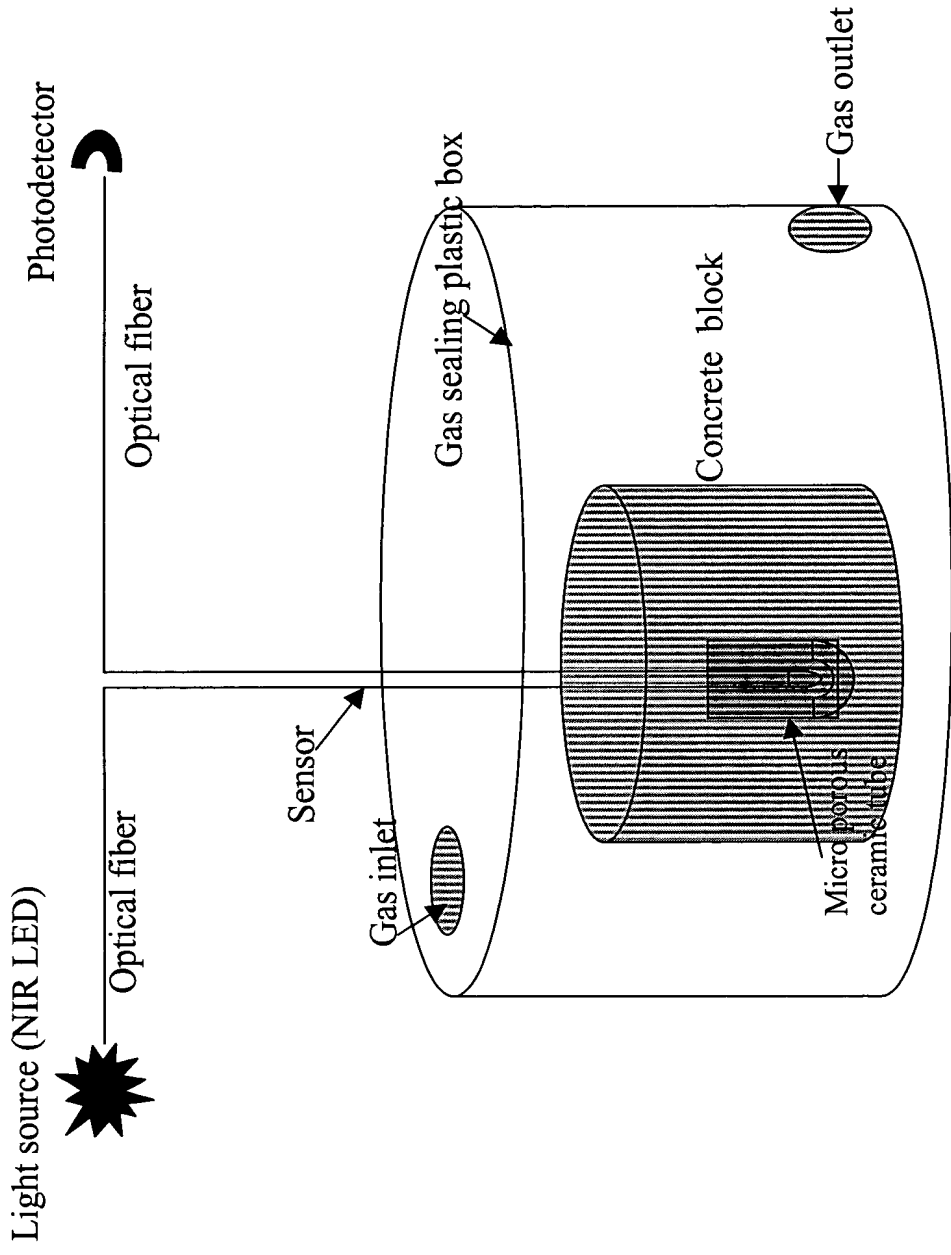


Fig. 11 Laboratory set-up for testing the sensor of this invention for monitoring moisture inside a concrete block

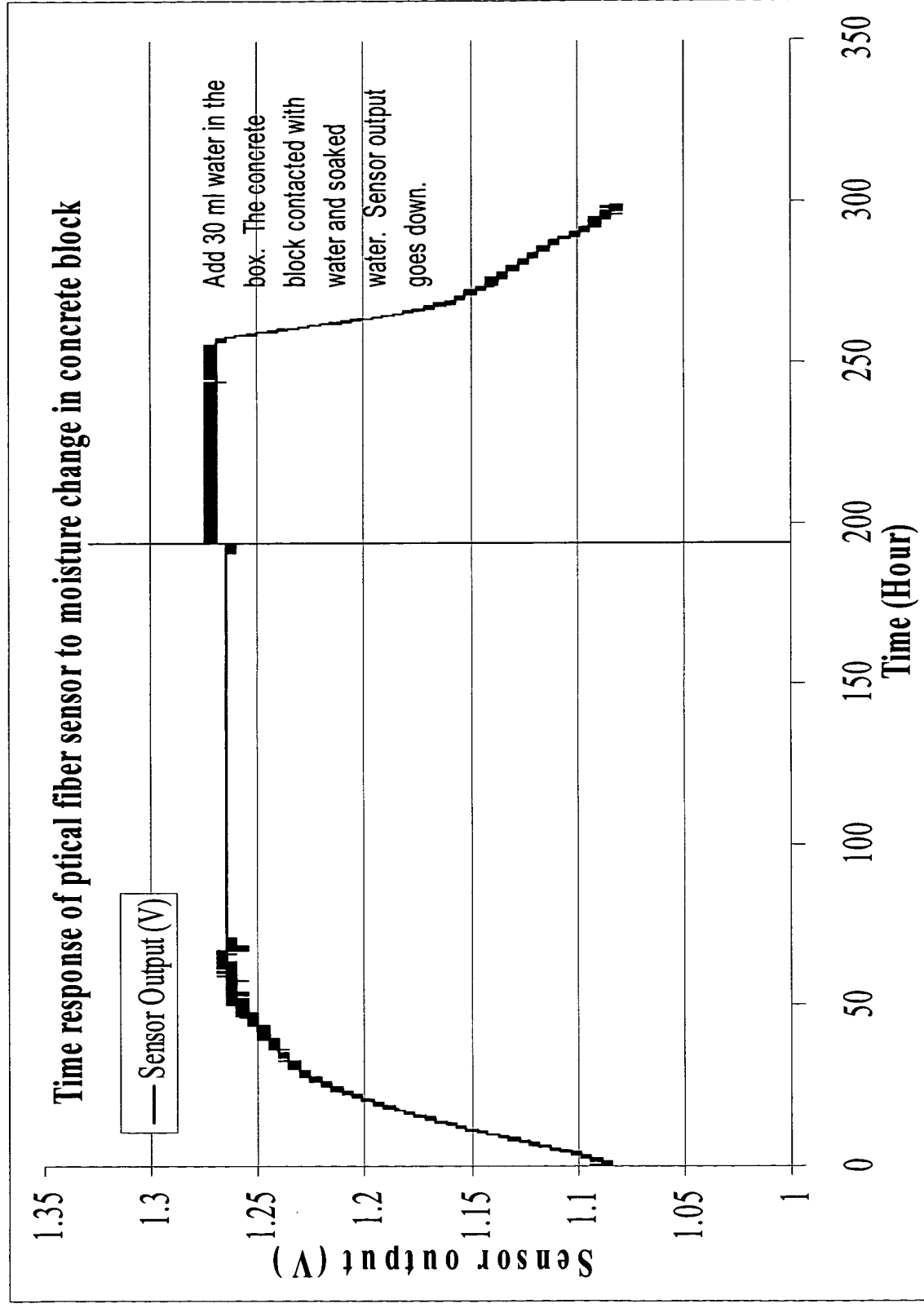


Fig. 12 Preliminary test result of optical fiber sensor for monitoring moisture in concrete block